T. W. SPELLMAN.

ADJUSTABLE PATTERN.

APPLICATION FILED JAN. 4, 1918.

1,291,221.

Patented Jan. 14, 1919.

3 SHEETS—SHEET 1.

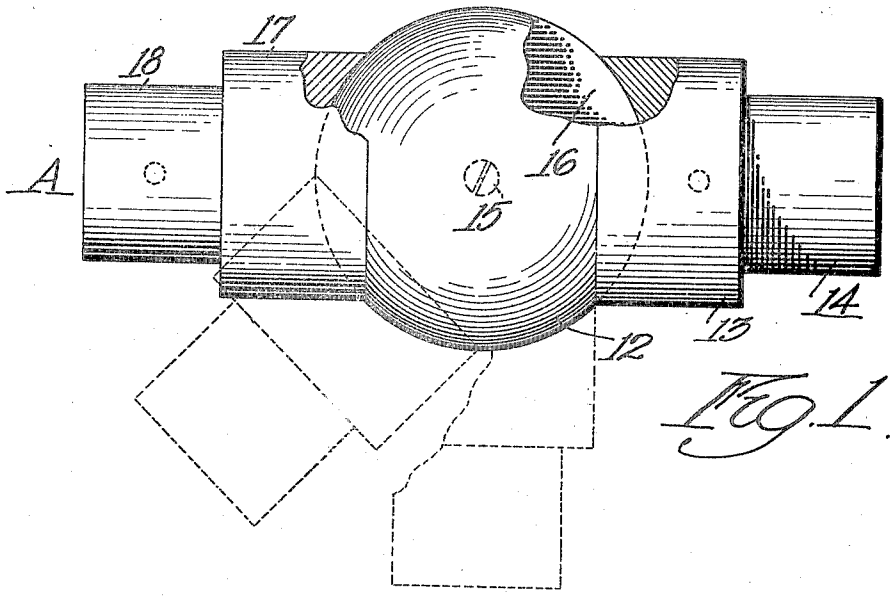


Fig. 1.

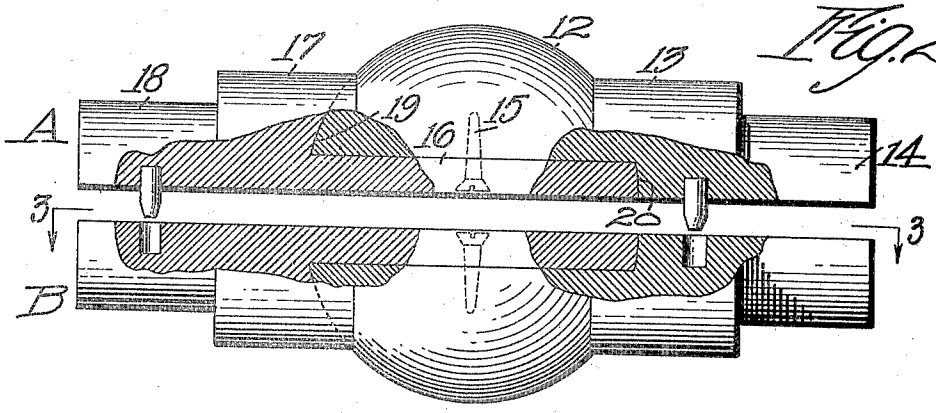


Fig. 2.

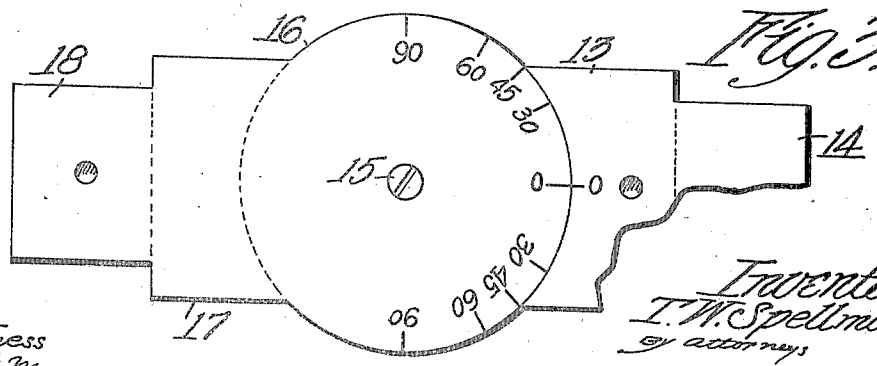


Fig. 3.

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3 SHEETS--SHEET 2.

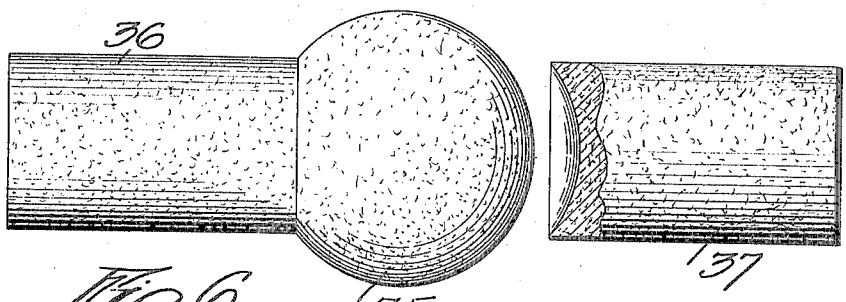


Fig. 6.

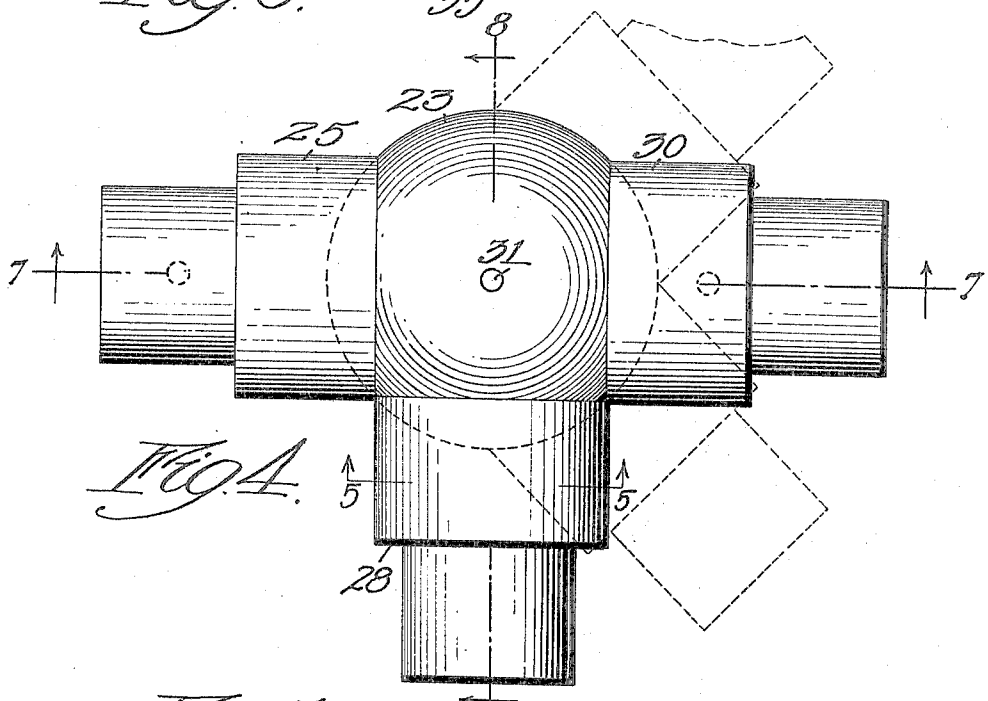
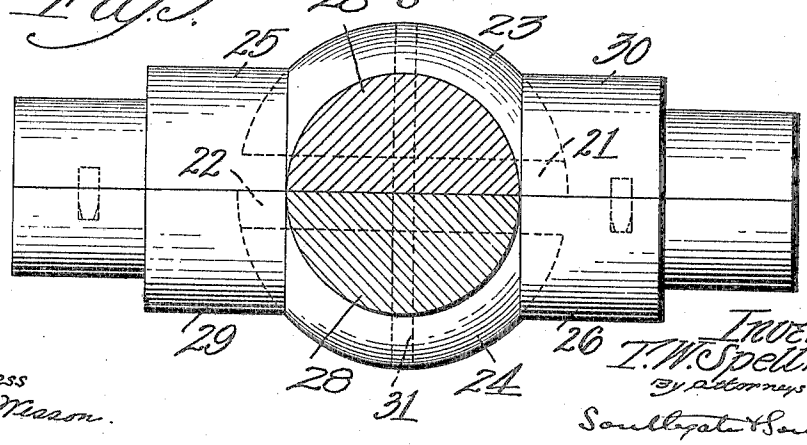


Fig. 4.

Fig. 5.



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3 SHEETS—SHEET 3.

FIG. 7.

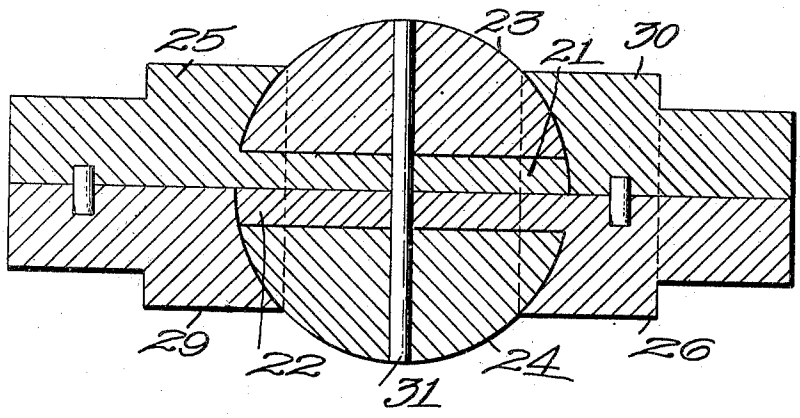
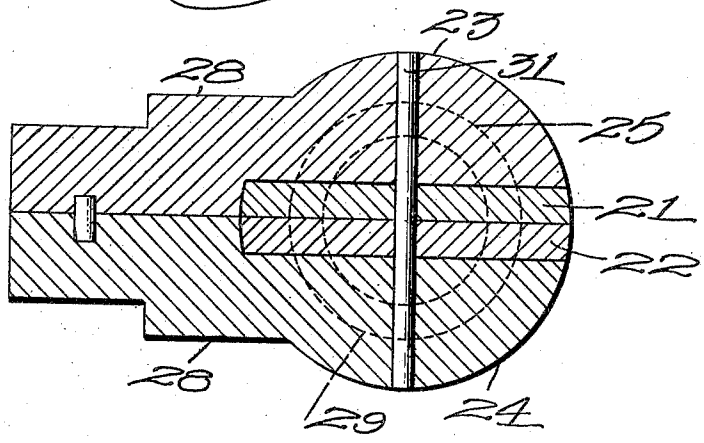


FIG. 8.



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UNITED STATES PATENT OFFICE.

THOMAS W. SPELLMAN, OF WORCESTER, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO FREDERICK A. NELSON, OF WORCESTER, MASSACHUSETTS.

ADJUSTABLE PATTERN.

1,291,221. Specification of Letters Patent. Patented Jan. 14, 1919.

Application filed January 4, 1918. Serial No. 210,276.

To all whom it may concern:

Be it known that I, THOMAS W. SPELLMAN, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Adjustable Pattern, of which the following is a specification.

This invention relates to a pattern designed particularly for casting pipe joints or fittings.

The principal objects of this invention are to provide a construction in which the parts of the pattern can be relatively adjusted so as to permit of the casting of several different pipe fittings from a single pattern, thus eliminating a great amount of pattern making and facilitating the production of castings of this character; to provide a construction in which a single pattern can be used to form a straight-way fitting or an elbow at ninety degrees or any other ordinary angle, or a three-part pattern can be used to cast an ordinary T, a Y or any other fitting having three branches, no matter what the angles, in such a way that the usefulness of the adjustable pattern will not be limited to any particular angles, but special fittings, even those of an angle very seldom used, can be made with the same facility as ordinary T's and elbows.

The invention although capable of use for pipe fittings of various kinds and other castings, is particularly useful in connection with the kinds of pipe fittings that are used for making stair rails or the like. It is to be understood, also, that it is not limited to two and three way fittings, but can be used for those having a larger number. When a four-way fitting is used the adjustment is universal in the sense that the opposite branches do not have to be in alinement with each other.

Further objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawings in which—

Figure 1 is a plan of a two-way pipe fitting pattern constructed in accordance with this invention the parts being broken away to show interior construction;

Fig. 2 is an edge view of the same partly in section with the two half patterns shown slightly separated;

Fig. 3 is a plan of the lower half as indicated by the line 3—3 of Fig. 3;

Fig. 4 is a plan of a three-way pattern constructed in accordance with this invention;

Fig. 5 is a sectional view on the line 5—5 of Fig. 4,

Fig. 6 is a view of a two-part core for use in connection with a two-part pattern like that shown in the first three figures, and Figs. 7 and 8 are sectional views on the lines 7—7 and 8—8 respectively of Fig. 4.

In the form shown in the first three figures a pattern is illustrated in two parts, one A to go in the cope and the other B, in the drag. Each part is made up of two elements. One element of the part A comprises a central circular or spherical portion 12 having an arm 13 shown cylindrical in this case but constituting part of the pattern proper and therefore of course shaped in accordance with the casting to be produced, and this is provided with a core-print 14. The members 12, 13 and 14 are fixed relatively to each other and constitute one element of the pattern. The portion 12 may be spherical or not, but is necessarily circular in its general shape and is provided with a pivot 15 at its center shown in the form of a screw. On this is pivoted a circular plate 16 which constitutes a part of the other element of the pattern and is fixed with respect to another arm 17 corresponding with the arm 13 and a core-print 18. The arm 17 is provided with a spherical seat 19 for receiving the surface of the spherical portion 12, and the arm 13 is also provided with a spherical or circular seat 20 for receiving the edge of the plate 16 and fitting the same. The edge of the plate 16 in the form shown constitutes a continuation of the spherical surface of the central portion 12.

It will be obvious that the two elements of the half pattern will be capable of swinging about the pivot 15 as a center relatively to each other so as to form a straight-way pattern as shown in Fig. 1 in full lines, a ninety degree elbow or a fitting with the

two elements making some other angle with each other as indicated in dotted lines. The other half B of the pattern is of the same construction and need not be described in detail.

Another feature shown in Fig. 3 is a scale on the plate 16, the flat side of the corresponding arm 13 having a zero point to register with the zero point on the scale when a straight-way fitting is to be cast. The number of degrees of the angle is read off on the scale and the parts set to produce the desired angle without any difficulty. One of the parts having been set in this way the other half is simply fitted to it in an obvious manner.

In the form shown in Figs. 4 and 5 the same situation prevails, except that here I have shown a three-way pattern and in this case there is a different kind of coöperation between the cope and drag portions of the pattern. Each half of the pattern is not complete in itself in this case because some of the portions are made detachable with respect to the other parts of the same half. In this case the spherical or circular central part is made up of four members 21, 22, 23 and 24, the parts 24 and 23 corresponding in a general way to the parts 12 in the first three figures and the parts 21 and 22 to the two parts 16. Each one of these members 21, 22, 23 and 24 has a half pattern of one of the arms or branches integral with it. For example, in the form shown the plate 22 has an integral half member 26 on the lower half of the pattern, while the plate 21 has an integral portion 25 on the upper half. The members 23 and 24 each have an integral arm 28. It is to be observed that although there are only three arms to this pattern there are four integral half arms connected with the four central members. This leaves two of the half arms 29 and 30 disconnected from them. These are provided with the necessary spherical seats for the central portion of the pattern and are simply held to their corresponding half arms 25 and 26 by dowel pins in the usual way. They have to be drawn separately unless temporarily fixed to the central part of the pattern. A central pivot pin 31 is used.

A special form of baked sand core is employed comprising a central circular or spherical section 35 and a print 36 integral with it with a second print 37 detachable from it for a two way fitting. If a three or four way fitting is to be made the number of detachable core members 37 to seat in the prints is correspondingly increased.

With this invention the movable parts of the pattern are capable of being adjusted to any angle that may be necessary and no really detachable pieces are required to complete the pattern when any of the kinds of adjustments are made. The pattern, therefore, is complete in itself and this is an important feature in this industry because detachable portions of patterns constitute an expensive feature in molding and increase the possibility of error.

Although I have illustrated and described only two forms of the invention I am aware of the fact that modifications can be made therein without departing from the scope of the invention as expressed in the claims. Therefore, I do not wish to be limited to all the details of construction herein shown and described, but what I claim is:—

1. An adjustable pattern for a pipe fitting consisting of cope and drag members each comprising a central hemi-spherical portion constituting part of the ball portion of the pattern having two members in each half of the pattern centrally pivoted together, and an arm integral with each of the said central portions and adapted to swing about the pivotal center therewith, said arms forming with said central portions the entire pattern surface in all positions, and core prints extending from the ends of said arms.

2. An adjustable two-part pattern for a pipe fitting comprising a central spherical portion constituting part of the ball having two members with partially spherical surfaces in each half of the pattern centrally pivoted together, an arm integral with each of said members and adapted to swing about the pivotal center therewith, said arms forming with said members the entire pattern surface, and core prints extending from the ends of said arms in each half of the pattern, one of said arms having a partially spherical socket on its inner end fitting closely the spherical surface of the other of said members.

In testimony whereof I have hereunto affixed my signature.

THOMAS W. SPELLMAN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."