

H. C. SHAW & W. H. MORSE.
SAFETY DEVICE FOR PITMEN AND THE LIKE.
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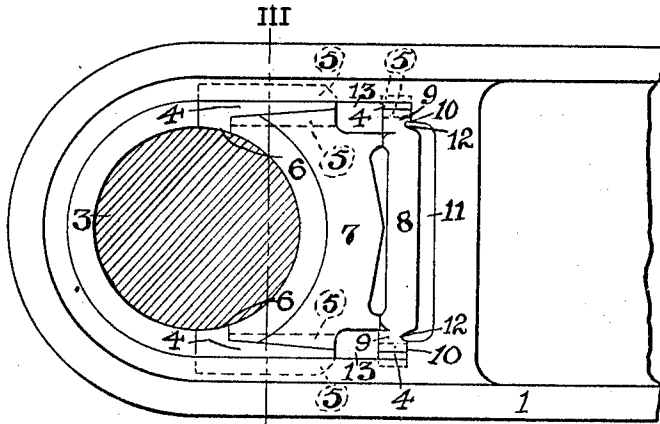


FIG. 1.

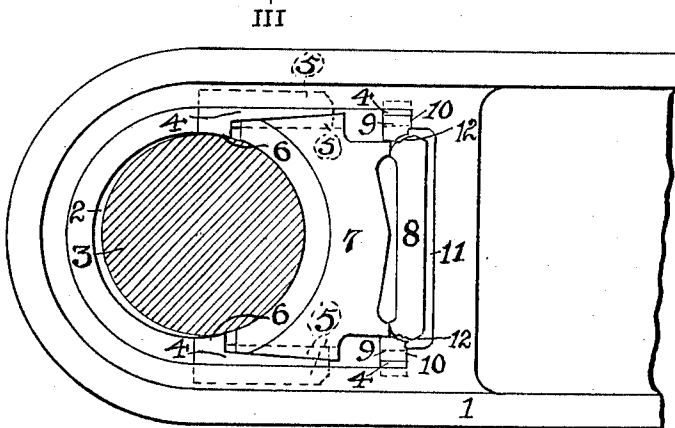


FIG. 2.

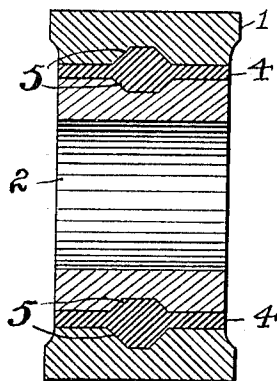


FIG. 3.

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SAFETY DEVICE FOR PITMEN AND THE LIKE.

1,048,358.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, HENRY C. SHAW and WILLIAM H. MORSE, citizens of the United States, residing at Glenshaw and Pittsburgh, respectively, in the county of Allegheny and State of Pennsylvania, have invented new and useful Improvements in Safety Devices for Pitmen and the Like, of which the following is a specification.

Our invention relates to devices for preventing the breaking of machinery when a pitman or other movable element has its usual or intended stroke obstructed, or when the force transmitted to or from the pitman or other movable element reaches a predetermined limit. In metal bending or shaping presses, the pitman which drives the movable die has a stroke adjusted to the location of the fixed die and the thickness of the metal to be bent or shaped. In case the metal should be too thick, or some object should get between the dies so as to prevent the pitman taking its normal stroke, some portion of the press would be broken or injured. In stone crushers, it is common to provide safety blocks which break if any material, as a sledge, which the crusher jaws could not break, should get between the jaws.

It is the object of the present invention to provide a safety or breakable block and a suitable holder or carrier therefor so constructed and arranged that the block or a section thereof may break when the force transmitted to or from its holder or carrier, such as a pitman, becomes so excessive as to endanger the breaking of a portion of the machinery.

One object of this invention is to prevent any liability of the machinery becoming obstructed by the parts of the safety-block when broken.

Referring to the accompanying drawing, Figure 1 shows in side elevation one end of a pitman provided with the preferred form of our invention. Fig. 2 is a similar view but with the parts in the positions assumed after the safety-block breaks. Fig. 3 is a section on the line III—III, Fig. 1, the pin 3 being omitted.

On the drawings, 1 designates one end of a pitman by which motion or force may be received and transmitted in a manner well known. The outer end of the pitman has

the transverse opening 2 to receive the pin 3, which transmits motion to or from the pitman. The outer side of the opening 2 is in the end wall of the pitman while the inner side of the opening is in a safety-block which is held in the pitman by the babbitted connections 4 having the extensions 5 lying in the block and the sides of the pitman. The connections 4 at the outer end of the safety-block have each a projection 6 extending into contact with the pin to form a bearing for the pin.

The safety-block is preferably made in two sections so that only one section need be replaced when the safety-block ends are broken off. We have designated the larger portion of the safety-block by the numeral 7, this portion being that which contacts with the pin 3.

8 is the smaller section of the safety-block.

It consists of a metallic bar, composed of cast-iron, for example, having terminal heads 9 resting on the shoulders 10, formed by providing the recess 11 in the pitman, so that the entire section 8 except the heads 9 stands or lies over the recess. The heads 9 are connected to the body of the section 8 by reduced portions or necks 12, the heads extending preferably beyond the necks in both directions lengthwise of the pitman so that portions of the heads 9, which extend wholly over the shoulders 10, will not break off with the necks and injure the sides of the pitman when the body of the section 8 is pushed back into the recess 11.

The sides of the safety-block are provided with the recesses 13 which are sufficiently large to allow the block or the heads to move the depth of the recess lengthwise of the pitman when the necks 12 break.

Preferably the ends of the heads 9 farthest from the shoulders 10 are wider than the ends which rest on the shoulders so that the lines of the fractures at the necks 12 will be inclined, or so that these lines will diverge toward the recess 11, whereby the section 8 will always enter the recess 11 without any wedging against the sides of the pitman.

The necks 12 are made of such cross-area as to withstand a predetermined force operating to the right on the pin 3, or to the left on the pitman 1; but when the predeter-

mined force is exceeded, the necks are broken, and the pin forces the block to the right, so that the body of the section 8, or the portion of the safety-block between the heads 9, enters the recess 11; or the pitman moves to the left carrying with it the broken-off heads 9. Fig. 2 shows the position of the parts after the necks 12 have been broken off.

It is readily seen that there are some advantages in making the safety-block in sections, but we do not restrict our invention to a sectional safety-block. The section 8 may be small relatively to the size of the section 7, which is more expensive both on account of its containing more material and on account of its having a portion machined and babbitted to fit the pin 3. A wedge or other device may be inserted between the sections 7 and 8, Fig. 2, and the section 7 forced back to its former seat in many instances, thereby saving the time and expense of again babbitting this section. After the section 7 is reseated or again babbitted, a fresh section 8 is inserted as shown in Fig. 1 and babbitted in place.

We claim—

1. A movable member having a transverse opening, a motion-transmitting member in the opening, a transverse safety-block carried by the movable member and having its ends resting on shoulders borne by the sides of the movable member, there being between the shoulders a recess into which the intermediate portion of the safety block may enter when the said ends break off from the said intermediate portion.

2. The combination of a breakable safety-block, a carrier therefor, having movement transversely of the block, and an element seated in an opening in the carrier and bearing on the safety-block to transmit power to or from the same, the carrier having spaced shoulders and an intermediate recess, and the safety-block having its end portions connected to the body thereof by necks and rest-

ing on the shoulders, and its intermediate portion lying over the recess.

3. The combination of a breakable safety-block composed of two sections, a carrier therefor, an element bearing on the safety-block to transmit power to or from the same, and a pair of shoulders in the carrier, there being a recess between the shoulders, one section of the safety-block having its ends resting on the shoulders and its intermediate portion lying over the recess, and the other section of the safety-block lying between and engaging the said element and the said intermediate portion of the first section of the breaker-block.

4. The combination of a breakable safety-block, a carrier therefor, having movement transversely of the block, and an element seated in an opening in the carrier and bearing on the safety-block to transmit power to or from the same, the carrier having spaced shoulders and an intermediate recess, and the safety-block having its end portions on the shoulders, and its intermediate portion lying over the recess, the safety-block being biased so as to break on lines which converge toward the said element from points between the shoulders.

5. The combination of a breakable safety-block, a carrier therefor, having movement transversely of the block, and an element seated in an opening in the carrier and bearing on the safety-block to transmit power to or from the same, the carrier having spaced shoulders and an intermediate recess, and the safety-block having its end portions on the shoulders, and its intermediate portion producing pressure on the said end portions close to the said shoulders.

Signed at Pittsburgh, Pa., this 12th day of December, 1911.

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