H. DESMOLIÈRES.

MULTIPLE BAND BELT.

APPLICATION FILED SEPT. 27, 1910.

1,001,823. Patented Aug. 29, 1911.

Fig. 4

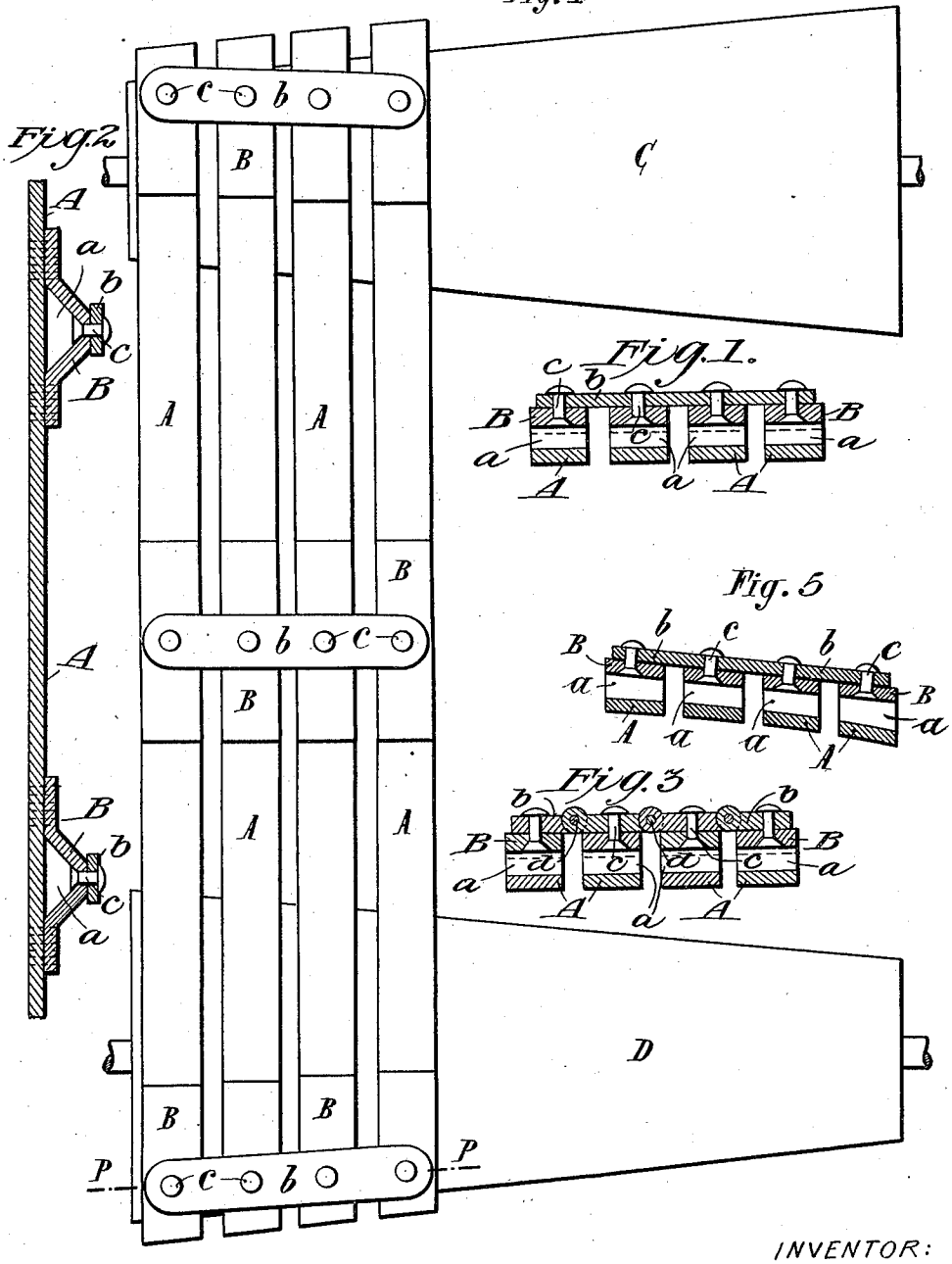

Fig. 2.

Fig. 1.

Fig. 5

Fig. 3

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MULTIPLE-BAND BELT.

1,001,823. Specification of Letters Patent. Patented Aug. 29, 1911.

Application filed September 27, 1910. Serial No. 584,157.

To all whom it may concern:

Be it known that I, HUBERT DESMOLIÈRES, a citizen of the Republic of France, residing in Raincy, Seine-et-Oise, France, have invented certain new and useful Improvements in Multiple-Band Belts, of which the following is a specification.

It has been recognized that a belt comprising a number of parallel parts or bands, joined together by transverse pieces, possesses advantages over the usual form of band belt. Previous belts of the multiple-band type have usually consisted of longitudinal bands and transverse connecting bands joined by rivets or the like. Such belts have not been entirely satisfactory, as the unequal strains, etc., to which the belt is subjected in use loosen the joints between bands, thereby rendering difficult the shifting of the belt and permitting unequal elongations of the different bands, and other complications. It has been sought to overcome the objections encountered by other constructions, but without obtaining the desired satisfaction.

The present invention aims to provide an improved belt of the kind referred to, and the system to which this invention refers consists in joining together the longitudinal bands which form the belt with the aid of stiff metallic blades, while at the same time leaving to the longitudinal primary bands the capability of properly adapting themselves to the pulleys. With connecting metallic blades an absolutely homogeneous belt, incapable of deformation, is obtained, all parts of which are strictly dependent upon one another. The sliding effects which are unavoidable occur very regularly, whereby a constant transmission of motion is assured. Moreover, the resistance of the belt is considerably increased owing to the fact that it is no longer liable to partial deformations or elongations. Furthermore the stiff blades which establish the connection between the longitudinal primary bands are not joined to said bands directly by means of pins connecting the longitudinal bands and the transverse metallic blades, but are connected through the medium of flexible parts which are firmly attached to the longitudinal bands and arranged in the same direction as they are. These jointing flexible parts, which are preferably relatively stiff laterally, like the parallel bands of the belt, are slightly raised between the extremities by which they are attached to the belt-bands and it is to these parts that the stiff metallic blades are attached by means of pins.

The foregoing explanations go to show how the improved jointed belt, the object of this invention, is differentiated from the systems previously suggested. The following description and the accompanying drawings will also clearly illustrate the details of construction.

Figure 1 is a cross section of a jointed belt, and Fig. 2 is a longitudinal section thereof. Fig. 3 is the transverse section of a modification with transverse blades consisting of several parts jointed together. Fig. 4 is a front view of the improved belt placed upon the pulleys to be connected together. Fig. 5 is a transverse section on the line P P, Fig. 4, which shows the respective positions of the longitudinal bands, of the flexible parts which are attached to the same, and of the stiff blades which establish the connection at the moment when the latter pass over the pulleys.

The longitudinal bands or elements A, which compose the belt, carry upon their external surface at the points where the stiff connecting blades are to be attached, parts B of leather or any other flexible material, the ends of which are secured to the bands A, while the central part is slightly raised or looped so as to leave, between the transverse blade and the band A, an empty space *a* as shown in Figs. 1 and 2. The stiff metallic bands *b* the function of which is to connect together the longitudinal bands, are joined on to said raised parts B by means of pins or rivets *c*, the riveting being effected in such manner that the stiff bands *b* are capable of assuming the slanting position requisite for the bands A of the belt to properly adapt themselves to the conical pulleys. The heads of the pins must therefore not clench too tightly.

The stiff connecting metallic bands *b* may be each either in one place lengthwise, or they may, as shown in Fig. 3, comprise separate parts joined together by hinged or pivoted joints *d* for the purpose of imparting flexibility to the belts transversely. This latter arrangement is particularly suitable in cases where the conical pulleys are terminated at the ends by cylindrical parts. The belt with cross-tied laminæ can very well be adapted to both a conical part and a cylin-

drical part of the pulley, thus forming crosswise a broken line, which does not in any way affect the stiff joining of the longitudinal bands in the direction of their length.

Upon reference to Fig. 4, which illustrates the respective positions taken up by the bands A of the belt, when running over the conical pulleys C, D, it will be easily seen that the flexible parts B are incapable of any possible elongation in the longitudinal direction. Moreover they are all dependent upon one another, owing to their being united by means of the stiff blades *b*. The belt-bands A are, therefore, also all dependent upon one another, so that, when working, the various strains which respectively actuate them, are evenly spread over the whole of the bands. The transmission of motion is effected in an absolutely regular manner at any given point, whereby a constant speed of transmission of motion is obtained.

Upon inspecting Fig. 5 it will be observed that the flexible parts B do not present a uniform empty space *a* as the stiff blades *b* run over the conical pulleys. In fact the longitudinal bands A remain in contact with the pulleys and the stiff blades *b* assume an oblique position relatively to the longitudinal bands. At the time of their passing over the pulleys, the bands *b* are at a greater distance from the longitudinal bands A at their ends than at the center. The flexible parts B which are in the center are, therefore, compressed between the longitudinal bands A and the stiff blades *b*. The warping which the stiff blades would have to undergo is consequently transmitted to the flexible parts B. The strain on the parts B being considerably less than the tension of the belt, the deformation of the flexible parts B can occur while leaving the longitudinal bands A of the belt in perfect contact with the conical pulleys.

The connection effected between the stiff transverse blades and the longitudinal primary bands of the belt through the flexible parts prevents the metallic contact of the pin-heads *c* with the conical pulleys, which has the further advantage of insuring perfect and uniform adherence to the belt.

Having thus described the nature of my said invention and the best means I know of carrying the same into practical effect, I claim:—

1. A jointed belt comprising a plurality of parallel primary bands longitudinally disposed, and devices connecting together the said primary bands and each comprising a plurality of longitudinally arranged flexible parts, a flexible part being attached to each band, a transverse rigid part imposed upon a plurality of said flexible parts, and means adapted to connect the rigid part with the flexible parts.

2. A jointed belt comprising a plurality of parallel primary bands longitudinally disposed, a series of loop pieces with flexible walls longitudinally disposed on and rigidly attached to each band, a series of stiff metallic bands each disposed transversely of the primary bands and adapted to connect a loop piece on one band with a loop piece on an adjacent band, and rivets adapted to attach the metallic bands to the loop pieces.

3. A jointed belt comprising a plurality of parallel primary bands longitudinally disposed, and devices connecting together the said primary bands, and each comprising a plurality of longitudinally-arranged flexible parts, a flexible part being attached to each band, a laterally rigid part arranged transversely upon a plurality of said flexible parts, and means adapted to connect the rigid part with the flexible parts.

4. A belt comprising a plurality of longitudinal bands, laterally rigid transverse strips, and intermediate flexible strips connecting said longitudinal bands and transverse strips.

5. A belt comprising a plurality of longitudinal bands, flexible laterally stiff strips attached to said longitudinal bands, and laterally rigid transverse strips connected to said flexible strips.

In witness whereof, I have hereunto signed my name in the presence of two subscribing witnesses.

HUBERT DESMOLIÈRES.

Witnesses:
H. C. Coxe,
Charles Mardelet.